



General overview of WP4 status (not review of this meeting nor technical summary). Activities still underway in **red**, highlights in **blue**:

- Linac rf unit:
 - Baseline defined, all major parameters fixed – **aligned with EuPRAXIA, becoming standard**
 - Combined rf and beam dynamics optimization completed
 - Pulse compression and rf network defined
 - Dual-mode-source operation established: 100 Hz - 65 MV/m and 1 kHz – 30 MV/m
 - Power sources defined
 - Stimulated strong response of klystron and modulator industrial partners (Canon and CPI), **major impact already of our design study, new devices in commercial pipeline**
 - **Thermal issues under study (two steady state operating conditions)**
 - Dual-bunch operation
 - Long-range wakefield suppression through detuning optimized
 - Accelerating structure mechanical and thermal design
 - Structure is important cost and performance driver
 - Direct participation of industrial partner VDL
 - Brazing method chosen, tolerances being established, parameterized drawings, **coupler design, ongoing**
 - **Industrialization studies ramping up**
 - **Activity will continue with construction of two structures in COMPAS of I-FAST**



Other major rf systems:

- Sub-harmonic (3 GHz) separator for two-bunch operation
 - Baseline established
 - rf structure chosen and designed
 - Power source and waveguide distribution system defined
- Harmonic linearizer system (36 GHz) – frequency may become important tool in the future
 - Baseline established
 - Parameters established with injector and beam dynamics, iteration underway
 - Power source feasibility established to level of simulation
 - Gyroklystron
 - Multi-beam klystron
 - Partnership with industry and funding needed for step up to prototypes
 - Pulse compressor and waveguide distribution established
 - Structure established
 - 30 cm, 2 mm radius aperture travelling wave baseline
 - Standing wave alternative



Other aspects of the linac:

- Integration
 - Three module types identified with 4, 2 and 1 quadrupole per module
 - Longitudinal space reservations established
 - Ongoing iterative work with hardware experts from outside of WP4. We get by with a little help from our friends...
 - Quadrupoles
 - Support and alignment
 - Vacuum
- Instrumentation – happy to see creation of WP8!
 - Wakefield monitors are not part of baseline, but will be described as an option/alternative
 - **Will work with WP8 and 6 on specification of POLARIX systems**
- Costing and power consumption
 - Initiatives launched inside of WP4 now being carried out CompactLight-wide



Deliverable writing:

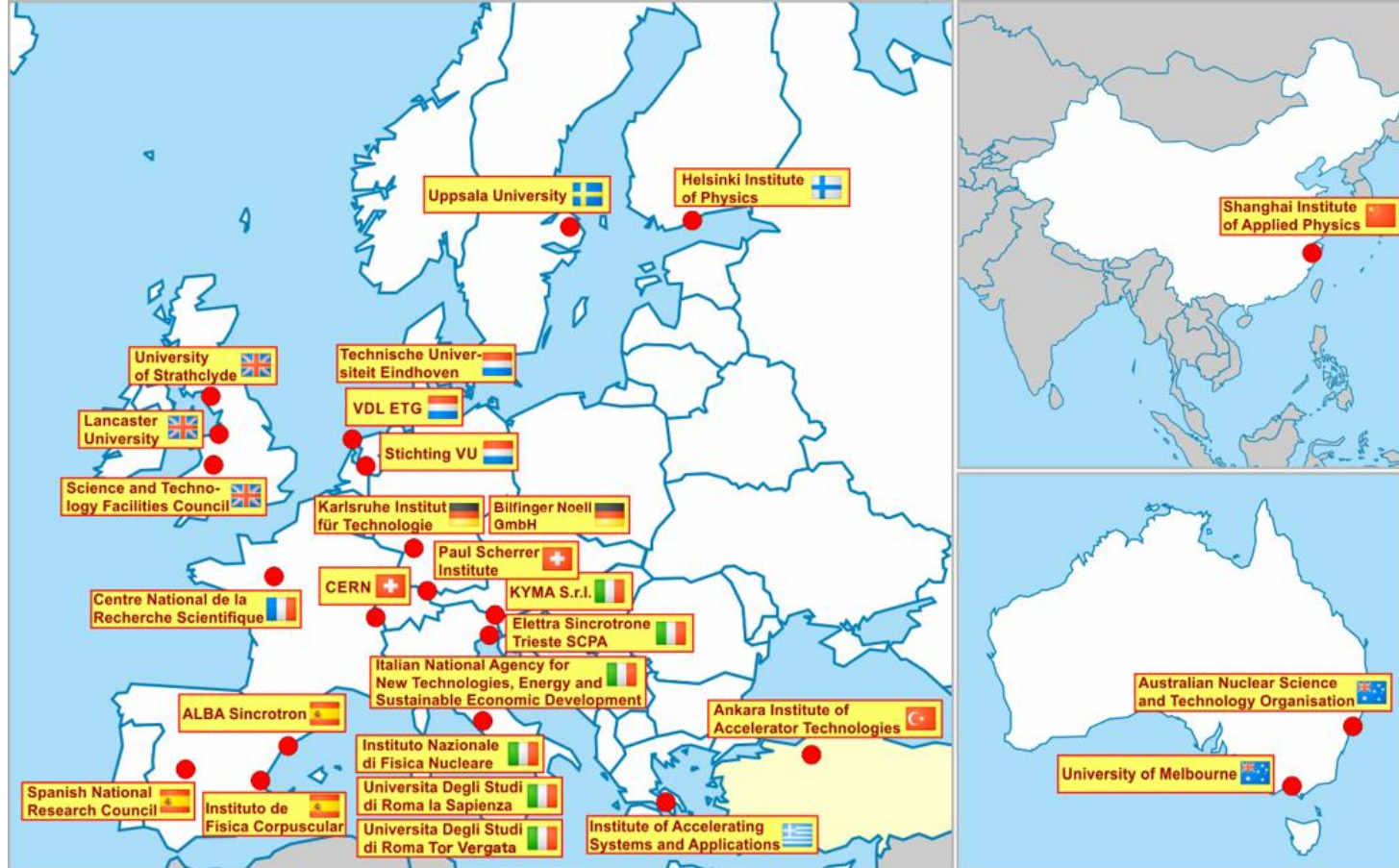
- D4.2 Design of linac rf unit, has become Design of CompactLight linac and specialized rf systems
- D4.3 The linac accelerating structure: rf, mechanical and thermal design. Industrialization
- Schedule:
 - “Zero-version” draft mid December
 - Complete first draft end January
 - Edited draft end February
 - Submission to EU end March



Thank you!

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